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Improving Students' Innovation Capacity Universities In Hanoi

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ABSTRACT: The study focused on assessing the innovation capacity of full-time students at some universities in Hanoi by analyzing a multivariate regression model based on a survey sample of 813 students. The results of the study showed that four selected factors have a positive impact on the innovation capacity of full-time students at the university. Among these factors, the organization's creative support environment was identified as the factor with the most significant impact on students' innovation capacity. From the study results, we propose four solutions to improve students' innovation capacity in the coming time.

KEYWORDS: Innovation, Student's innovation, University, Hanoi.

1. INTRODUCTION

Innovation is an essential measure of competitiveness and social proof of the times, so any individual in the economy needs to grasp social trends to adapt, and students are an integral part of this activity. In the context of the strong development of the digital economy, studying the factors affecting the innovation capacity of students in universities will help improve the innovation capacity of students, thereby improving student learning sustainably thanks to advances in technology, finance, and social factors of the university. Innovation is using new knowledge to create a new service or product that customers want. Innovation includes the process of invention and commercialization. For universities, developing innovation capacity becomes a decisive factor in their competitiveness. This affects the quality of education and the country's ability to create value from knowledge and the economy. Investing in innovation capacity will help universities become centers for research, technology transfer, and application in production, thereby promoting the country's comprehensive development.

In 2023, the Ministry of Science and Technology announced that Vietnam ranked 46/132 countries/economies in the Global Innovation Index (GII). Vietnam maintained its 4th position in Southeast Asia and 2nd in 36 lower-middle-income economies. Notably, Vietnam is one of the seven middle-income countries that have made the most significant progress in Innovation over the past decade. Improving students' innovation capacity will help them participate effectively in the labor market and create favorable conditions for the sustainable development of Vietnam's economy in the future.

In the context of the strong growth of the digital economy, studying the factors affecting students' innovation capacity in universities will help improve students' innovation capacity, thereby sustainably improving students' learning thanks to advances in technology, finance, and social factors of the university.

2. LITERATURE REVIEW

2.1. Concept of student's innovation

Vietnam's Law on Science and Technology (2013) defines innovation as the creation and application of achievements, technical solutions, technology, and management solutions to improve socio-economic development efficiency, productivity, quality, and added value of products and goods. Individual innovation capacity combines qualities, knowledge, and skills to create new and valuable ideas. Capacity is essential in developing new products and services and is the core of innovation and progress in all areas of life. In the study of Laura et al. (2017), the critical role of knowledge content in developing innovation capacity is affirmed. It is the specialized knowledge and skills in a specific field that each individual or organization possesses, as well as the diversity and richness of knowledge from many different fields. Understanding and applying knowledge from various sources not only broadens the horizons and experience of individuals but also creates an environment rich in creativity and innovation. By combining and integrating knowledge from multiple sources, individuals and organizations can develop new solutions and unique ideas and create new value for society and the market.

In their study on enhancing innovation ecosystems in universities, Gontareva et al. (2022) emphasized that the essential condition for developing innovation ecosystems in universities is the concentration of many highly qualified and competent researchers (including lecturers and students) who have or have the potential to become authors of new ideas and succeed in commercializing them. However, the lack of basic knowledge about knowledge commercialization and entrepreneurial skills of students has hindered

the conversion of many ideas into finished products for commercialization in the market. Innovation is a multidimensional and ambiguous concept. Generally, they refer to the process of innovation and the effectiveness of creative and ingenious activities aimed at creating things, ideas, and practices (Goldsmith & Foxall, 2003) that strategically constitute changes or novelties that are commercially and economically justified (Janine Fleith De Medeiros et al., 2014). Innovation is not only about thinking but also about applying that thinking in practice. According to Billman, J. (2002), innovation is applying a creative idea to help businesses develop and adapt quickly in a competitive environment. Alternatively, innovation is the first application of ideas in practice (Bogdanienko et al., 2004). An individual's innovative capacity combines qualities, knowledge, skills, and attitudes to create new, unprecedented things (Laura et al., 2017). Like other types of capacity, an individual's innovative capacity can be learned, trained, and developed (Bruton, 2011). Kivunja's (2014) research suggests that the key to teaching creativity and innovation skills lies in creating quality learning environments that provide learners with opportunities to solve authentic, real-world problems and to be curious and open-minded. According to Meiju Marika Keinänen (2018), rapid societal changes and working life challenge higher education institutions to meet new demands. The role of higher education is not only to educate undergraduates about future jobs but also to train future employees to perform job tasks and, ideally, to create innovations.

Regarding students' innovative capacity, Meiju Marika Keinänen's research (2018) shows that innovative capacity is a learning outcome in higher education. The scale of individual innovative capacity determines a person's capacity related to different innovation processes of the organization. These skills focus on several areas, such as goal orientation and persistent action, independent thinking and decision-making, problem-solving and developing working methods, perseverance, risk-taking, and personal perspective. The scale of interpersonal innovation competence is based on communication, teamwork, and team leadership.

2.2. Factors affecting students' innovation capacity

Intrinsic motivation refers to the drive by passion, love, and desire to perform thinking, analyzing, and solving problems creatively. Students with this intrinsic motivation will enjoy the creative process more, increasing their capacity for innovation. Intrinsic motivation is considered the basic driving force for creativity at the individual level. Therefore, the hypothesis H1 of the research model can be proposed as follows:

H1: Motivation has a positive effect on students' creativity According to Eder and Sawyer (2008), creative autonomy helps individuals feel confident in facing risks when creating and finding new ways to complete the work. Therefore, creative independence is essential for students' innovation capacity in organizations because it creates and maintains trust and expectations in students' creativity, motivating them to act.

H2: Creative autonomy has a positive effect on students' creativity People with adaptive thinking styles tend to accept and solve problems with existing solutions, while people with creative thinking styles are more willing to face risks and do not follow existing ways of doing things; instead, they seek and develop new and more valuable solutions.

H3: Creative thinking styles have a positive effect on students' creativity Skariauskie et al. (2013) consider cognitive, emotional, and social as key components of innovation capacity. The academic environment is an essential source of entrepreneurial development and creative capacity. Drucker's (1985) research argues that aspects of innovation that can be taught and learned are developed and used by students through participation in university curricula and co-curricular programs.

H4: Quality of lecturer has a positive influence on students' creativity Student creativity is often reflected in the learning environment, and this usually depends on the level of support from the school. Woodman et al. (1993) have outlined the factors of the environment that support innovation capacity, including fair and cooperative leadership, flexible organizational structures, the assembly of diverse groups, and training focused on developing ideas and problem-solving skills. Meanwhile, Stukalenko et al. (2016) focused on support from colleagues and supervisors, which includes showing concern for students' feelings and problems and providing input and feedback.

H5: organization's creative support environment has a positive influence on students' creativity From the above theoretical summary, the research model on influencing factors

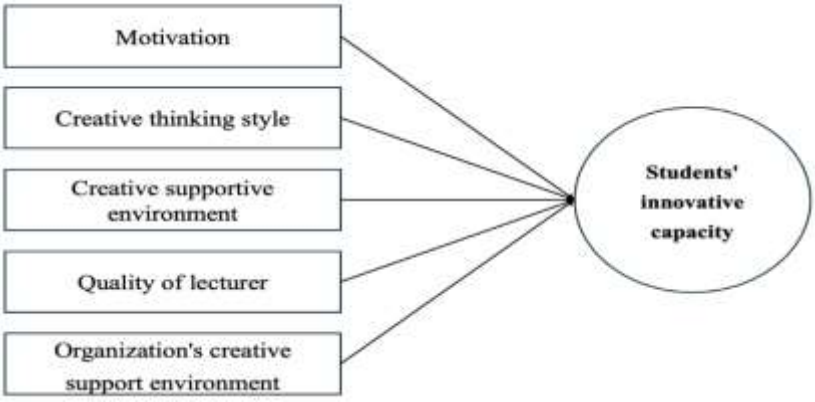

Figure 1. Model Research

3. METHODOLOGY

The research method uses 35 observation variables collected through the synthesis of research results of many different authors. The research sample is designed with a minimum of n = 28 x 5 = 140 to ensure that the survey sample is large enough and reliable. However, the authors used 850 observations to increase the reliability of the research results. After the data screening process, we found that 37 observations were unreliable and removed them. The number of observations included in the analysis is 813 observations.

The observation variables will be collected using a 5-level Likert scale that allows participants to evaluate the reliability of factors related to flower supply chain management in Vietnam. We use "Google Forms" to present the questions. Data collected from the survey will be analyzed and evaluated using descriptive statistics, Cronbach's Alpha reliability testing and exploratory factor analysis (EFA) using SPSS 26.0 software to determine the reliability level and general trends in flower supply chain management in Vietnam.

4. RESULTS

Analyze the scale's reliability by examining Cronbach's Alpha coefficient to eliminate inappropriate variables. According to Nunnally & Burnstein (1994), variables with a total correlation coefficient of less than 0.3 will be eliminated, and the criterion for selecting a scale is when it has an Alpha reliability of 0.6 or higher (Nguyen Dinh Tho and Nguyen Thi Mai Trang, 2008).

Table 1: Results of scale reliability assessment using Cronbach's Alpha and Varimax rotation method matrix

Variable	Cronbach's Alpha		Dependent Factor					Independent Factor
			1	2	3	4	5	
M1	0,753	0,743	0,.768					
M3		0,788	0.624					
M2		0.695	0.754					
M5		0,812	0.723					
M4		0.723	0.784					
CS1	0,812	0,783		0.745				
CS2		0,834		0,723				
CS4		0,742		0,742				
CS3		0,832		0,723				
QL2	0,796	0,815			0,723			
QL1		0,714			0,745			
QL4		0,792			0.791			
QL3		0,831			0.726			
CE1	0,747	0,723				0.724		
CE5		0,745				0.731		
CE3		0,798				0.722		
CE4		0,746				0,712		
CE2		0,815				0,737		
OC1	0,828	0,754					0,754	
OC3		0,812					0.712	
OC4		0,826					0,756	
OC2		0,894					0,742	
OC5		0,756					0,734	
IC1	0,874	0,732						0,714
IC2		0,764						0,757
IC4		0,812						0,714
IC3		0,783						0,712
IC5		0,845						0,736
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.						0,829		0,834
Bartlett's Test of Sphericity		Approx. Chi-Square				2413.316		2134.231
		Sig				0.000		0.000

According to Garson (2003), the standard for factor analysis is that the KMO index is greater than 0.5, and Barlett's Test has a significance level of Sig < 0.05 to ensure that the data used for factor analysis is appropriate and that the variables are correlated. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) value = 0.831. The result of the KMO index analysis is 0.831 > 0.5, which proves that the data used for factor analysis is entirely appropriate. The result of Barlett's test is 2295.609 with a significance level of Sig. = 0.000 < 0.05, at this time, there is enough basis to reject the hypothesis that the observed variables are

not correlated with each other in the population. Thus, the variables are associated with each other and satisfy the conditions for factor analysis.

Regression analysis shows the causal relationship between the dependent variable, "Applying blockchain to flower supply chain management," and four independent variables. The regression results show that the model is relatively suitable, with a significance level of 1%. The coefficient of determination of the adjusted R square regression model is 0.735. This explains about 73.5% of the variation in factors affecting the dependent variable, which the linear relationship between the Y and independent variables can explain. The remaining 26.5% are factors that are not considered. In addition, the results tested the assumption of the linear regression model, including the phenomenon of autocorrelation with the Dutch – Watson coefficient = 1.870 and within the acceptable range 1 < D < 3 (Pride and Ferrel, 1997). The multicollinearity measurement coefficient VIF of the variables is small (the largest is 1.521 < 2). Conclusion: there is no autocorrelation between random errors and the phenomenon of multicollinearity occurring between independent variables in the model is small and does not distort the regression results. Testing the hypothesis of the model's overall fit, we see that the value of F = 119.524 with sig. = 0.000 and less than 0.05. Therefore, the overall R square is different from 0. The linear regression model is suitable overall. The coefficient β shows the level of influence of 4 independent variables on the dependent variable and the importance of each independent variable respectively: Motivation (M) has β = 0.198, Creative thinking style (CS) has β = 0.125, Creative supportive environment (CE) has β of 0.165, Quality of lecturer (QL) with β = 0.278, Organization's creative support environment (OC) has β = 0.312. We have the equation:

Y = 0,312 OC + 0,278 QL + 0,198 M + 0,165 CE + 0,125 CS

5. CONCLUSION

The research results show that three critical factors positively impact the innovation capacity of full-time students at universities in Hanoi. These are the organization's creative support environment, intrinsic motivation, and creative style. The organization's creative support environment is the factor that has the most significant impact on the innovation capacity of students in the model. Based on these results, the authors propose several recommendations to improve students' innovation capacity, including:

Creating an innovative environment: The university must develop shared workspaces and equip modern equipment so students can easily implement their creative ideas. A favorable and fully equipped environment will create conditions for students to feel more confident when implementing innovative projects. In addition, universities need to develop mechanisms and policies to encourage creativity. A practical method is to assess and score students' creative activities instead of focusing only on traditional learning outcomes. Additional assessment criteria should also be implemented to assess students' creativity and innovation, motivating them to develop this ability during their studies and work.

Organizing training programs to promote creative innovation capacity: In today's educational environment, organizing training programs to encourage students' creative innovation capacity is very important. These programs help students develop creativity and problem-solving skills by focusing on creative thinking skills, teamwork, problem-solving, and using new tools. The program must also be diversified with innovative design, the latest technology, art, music, or sports topics. It is essential to provide opportunities for students to practice and apply knowledge through practical sessions, real-life projects, and creative competitions.

Building a team working style and democratic culture at the university: To encourage creativity and innovation, lecturers are essential in facilitating students' self-development. Promoting discussion and sharing ideas in complex assignments helps students learn from each other and confidently participate in problem-solving. The team working style in a democratic environment is about communication and cooperation and respecting and listening to each member's opinions. Applying methods such as seminars, group discussions, or simulation games encourages student interaction and exchange of ideas. A democratic environment comforts students to express their opinions and contribute ideas freely. Building an innovation competency framework: This framework will not only focus on developing creative thinking and problem-solving skills but also include building communication skills, teamwork, adaptability and self-learning, leadership, and project management skills. At the same time, creating opportunities for cooperation with businesses and organizations is also an essential part of this competency framework to help students apply knowledge to practice and promote innovation.

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